A NOTE ON THE APPLICATION OF LITHOLAPAXY OR LITHOTRITY TO STONE IN THE BLADDER IN THE CANINE SPECIES.

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It has been said—perhaps without sufficient consideration—that though man has profited much from observations made on the lower animals, the converse in its relation to surgery is hardly true.

In this note I propose referring to a process of treatment, which having been thoroughly tried and perfected in the first instance in the human species, is now being extended to animals when placed under corresponding conditions of disease with equally satisfactory results. In the latter relationship I should state I occupied more the part of a privileged and interested spectator than that of a responsible operator. I refer to the treatment of vesical stone in the canine species by the most improved and modern methods of crushing, or lithotritry with evacuation of the fragments so triturated.

My attention was first called to this matter by my friend, Mr. A. J. Sewill, M.R.C.V.S., a few years ago. Since then, and in some instances conjointly with Mr. Sewill, considerable attention has been given by me to it. I have now before me a collection of stones illustrating calculous disorders in various positions taken from these subjects. These include two specimens of renal calculus *in situ* and others removed entire from the bladder by lithotomy. A letter from Mr. Sewill accompanying them says:

I am sending you a few specimens of calculi I have removed by suprapubic operation. The large one you will remember you removed one Sunday. I am not sending you any of the stones I have removed by crushing, as I do not suppose the pieces would interest you.

The animal referred to here upon which I performed the suprapubic operation unfortunately died of peritonitis. It was a bitch only 14 lb. in weight. The stone weighed 3 oz. and 2 drachms. This operation was a difficult one, and led me, conjointly with Mr. Sewill, to endeavour to substitute in these circumstances, as in man, a crushing for a cutting operation.

These crushing operations, Mr. Sewill now informs me, have been followed by a considerable success, both immediately and remotely, as the canine species does not appear to be so liable to recurrence of stone as is the case with adult males of the human kind.

In his work on the dog, Mr. Sewill,¹ in referring to the treatment of vesical stone, only speaks of the removal of the latter either by some form of lithotomy, or in the bitch by dilatation of the urethra under cocaine or an anaesthetic, and the withdrawal of the calculus by forceps if sufficiently small. In a further edition of this work the process known as litholapaxy, or crushing stones and evacuating the fragments at the same time as applied to man, with its small mortality and minimized suffering, will for the future find a place in veterinary surgery.

I will describe a recent operation at which, as the French say, "I assisted" with Mr. Sewill. The patient was a large and powerful collie bitch who had for some weeks been suffering from symptoms typical of stone in the bladder. A sound was first passed into the bladder, when a moderate-sized stone was readily detected. As the animal was so tolerant and showed so slight evidence of distress other than that occasioned by the inconvenience of being held with the buttocks elevated by a single attendant who was well acquainted with her, Mr. Sewill at once passed a small ordinary smooth-bladed lithotrite into the bladder. Being then asked to manipulate the instrument, I readily seized the stone, and, finding it was too large to withdraw it entire by the urethra, I rapidly broke it up into minute fragments. When sufficiently triturated to pass through the eye of an evacuating catheter, the particles were withdrawn with an ordinary aspirator charged with water until the bladder was clear. Thus the stone was reduced and the fragments removed as in the human species with practically no bleeding nor evidence of pain. The entire operation occupied seven minutes. We were quite prepared to give an anaesthetic

had there arisen sufficient indication for its use either locally or generally. Not even any kind of muzzle was required, and the patient walked away with the attendant from my house as if nothing unusual had happened. I saw her a few days afterwards with but slight signs of any irritability of the bladder remaining. The stone proved to be phosphatic and of about the size of an ordinary brown hazel nut.

The after-treatment consisted in washing out the bladder once a day with some boracic lotion until all traces of vesical irritability had ceased. In contrast with the bitch, the dog presents anatomical distinctions which renders the performance of crushing more difficult. Mr. Sewill informs me that the dog is less liable to suffer from any considerable stone formations in the bladder than the oppositesex. He accounts for this partly by observing that the stone whilst small often becomes impacted behind the penial bone of the male urinary apparatus. This occasions a retention which may be and is promptly remedied by what I would speak of from the surgeon's point of view as a perineal lithotomy. The whole subject is of so much interest that, with Mr. Sewill's concurrence, I have thus ventured to write of it briefly in the way it has been presented to my notice. From the examination of the two specimens of stone in the kidney to which I have also referred, I see no reason, so far as the relations of the stone to the gland are concerned, why nephrolithotomy should not, as in the human species, be practised with success.

REFERENCE.

- ¹ *Dogs and their Management*. By the late Edward Mayhew, M.R.C.V.S., and A. J. Sewill, M.R.C.V.S. London: 1897.

TWO CASES OF ACUTE INTESTINAL OBSTRUCTION SUCCESSFULLY TREATED WITH QUICKSILVER.

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THE two following cases of acute intestinal obstruction treated with quicksilver may be interesting to the profession, and may lead to this drug being given a trial in cases in which an operation is either refused or unjustifiable, and where the routine methods of medical treatment at our present disposal have failed.

History.—J. C., a man of 60, but looking considerably older, fell down some steep stairs on September 14th, 1901. The next day he complained of pain in the umbilical region. This pain increased from day to day, and at the end of a week was very severe. His bowels had not been moved, and he was sick. The abdomen was greatly distended, and there was great pain over the umbilical region. Many kinds of aperients were tried without success, and water and turpentine enemata high and low were given a fair trial. His friends were unwilling for any operation. At the end of the ninth day his condition was most serious, constant vomiting, hiccough, and great abdominal distension. Pulse weak and running, and tongue dry.

Treatment.—As a heroic remedy I gave him $\frac{1}{2}$ lb. of quicksilver. He vomited about a tablespoonful of it immediately, which was washed and again taken; 1 gr. of opium was given every four hours.

Progress.—The following morning he felt easier—doubtless the opium—but he was not sick, and he was able to retain frequent nourishment in the way of Valentine's meat juice, coffee, and brandy. No action of the bowels. The next day his bowels were well moved and he felt and was greatly better. A mixture of sulphate of magnesia and belladonna was now given instead of the opium. His bowels were moved daily. No mercury appeared so far. His condition gradually improved, abdominal distension decreased, appetite improved, and he was able to leave his bed seven days after the administration of the quicksilver. He made a good recovery, and the mercury came away ten days after its administration. The man continued well during October and November, but on December 20th he suddenly developed hemiplegia, and died on December 26th. I was unfortunately unable to obtain a necropsy.

One of the difficulties in intestinal obstruction is the accuracy of diagnosis. The onset of the abdominal symptoms after the fall and the marked distension led me to lean to a diagnosis of volvulus of the bowel, which, if correct, the quicksilver, by its weight and fluidity, must certainly have unravelled.

Another apparently hopeless case in which I have tried quicksilver was the following:

History.—J. D., a man of 80, well nourished and enjoying good health, was taken suddenly ill with great pain in the epigastric region in the early morning of December 15th, 1901. When I saw him he complained of a sharp cutting pain at the pit of the stomach, and he had been sick. He was anxious and restless. His bowels had moved the day before, and he had eaten nothing to account for his symptoms. He had an easily reducible inguinal hernia, for which he wore a truss. I ordered some turpentine stupes, a bismuth and hydrocyanic mixture, and an aperient.

In the evening he was no better. He was suffering greatly from flatulency, but had passed no flatus, nor had the bowels moved. His temperature was 100° and his pulse good, but he had great pain over the epigastric and umbilical regions. He was given a mixture of sulphate of magnesia and small doses of belladonna. On the morning of the 16th his condition was worse. He had had a restless night and was sick frequently, bringing up at one vomit about half a pint of dark blood. His temperature was 101°, his pulse 100 and hard, the tongue dry. There was great thirst. I gave an enema, which brought nothing away, and was followed by a good deal of collapse and sweating. In the evening his bowels were greatly distended, but the pain was much better. His temperature was 101°, his pulse being fast and intermittent. He had a very restless night, with a good deal of delirium. In the morning of December 17th his symptoms were much the same as on the previous day—sickness, thirst, restlessness, and slight wandering. His bowels were greatly distended, and no liver dullness could be made out. His temperature was 101°, and his pulse fast and intermittent. No flatus passed, nor was there any action of the bowels. He was now taking 1 gr. of opium every five hours. He had a bad night. On the morning of December 18th his temperature was 100°, his pulse weak and running, his tongue dry, and constant sickness; there was delirium and great abdominal distension. In the evening I thought he was sinking. The vomiting of blood on the second day of his illness, the absence now of all pain, and marked tympanites over the entire abdominal region, made one fear gangrene of the bowel. His age and condition rendered any abdominal operation out of the question.

Treatment.—On mentioning the action of quicksilver to his friends, they were most anxious for its trial as a last resort. I must say I gave it with little hope and a good deal of misgiving. He had half a pound on the evening of the 18th and opium pills every four hours.

Progress.—Had a very restless and delirious night up to 6 a.m., when his bowels were moved, and he passed a great quantity of flatus. On the morning of the 19th he was distinctly better, his mind clearer, his pulse better, the abdominal distension less, and he was able to keep down nourishment, which he had now at frequent intervals. He passed a fair day, and had another action of the bowels in the evening. He gradually improved from day to day, and was able to take and digest frequent nourishment. His temperature still remained about 99°, and his pulse was still fast. A digitalis and strychnine mixture was now given with considerable benefit, and a dose of castor-oil now and then, which always moved his bowels well. He got up for a short time on December 20th. A small quantity of mercury appeared in the motions on the 20th, and on December 30th a large, if not the entire, quantity came away. His temperature fell to normal, his appetite improved, and on January 20th, 1902, his condition was most satisfactory. He was enjoying his food and a cigar, was able to get out and take exercise, and, beyond some little difficulty in keeping his bowels regular, was quite well.

In neither of the two cases I have described was there the slightest symptom of mercurialism, nor did the drug produce any increased abdominal pain.

In the second case, the very acute onset of serious symptoms, the presence of blood in the vomit, and the rapid development of general abdominal tympanites, clearly pointed to some very acute intestinal obstruction.

A NOTE ON THE INFANTILE MORTALITY FROM TUBERCULOUS MENINGITIS AND TABES MESENTERICA.

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THERE is an old axiom exhorting us to give the Devil his due, and another which asserts that that personage is not so bad as he is often painted. Substitute the tubercle bacillus for the author of evil, and the two proverbs form the text of this note.

By those who disagree with Koch's latest theories the infantile mortality from various forms of tuberculosis (of which the two diseases under notice form during the first year of life by far the greater half) is frequently used as an object lesson pointing to the extreme danger of a contaminated milk supply.

Milk forms the staple diet of infants; only too often it is cow's milk which takes the place of the mother's, the death-rate from tuberculosis is so-and-so, milk is proved to be infected—what more is wanted? Only the verification of all the premisses; and it is the penultimate as I have given them which is the weak link in the chain, though on paper it may appear the strongest. Textbooks are fairly unanimous in stating that tuberculous meningitis, at any rate, is comparatively rare under the age of 1. In view of this the figures in the following table, compiled from the last available statistics of the Registrar-General, are remarkable. According to them approximately three-tenths of all cases occur in the first year, something like half as many again as in the second age period, the next most affected.

Deaths from Tuberculous Meningitis in England and Wales.

Year.	All Ages.	Under One.	One.	Two.	Three.	Four.
1898	6,681	1,985	1,397	693	485	344
1899	6,449	1,820	1,228	712	478	372

The second table gives the deaths from tabes mesenterica during the same two years, and it will be seen that the proportion is even more marked.

Deaths from Tabes Mesenterica in England and Wales.

Year.	All Ages.	Under One.	One.	Two.	Three.	Four.
1898	6,357	3,265	1,135	394	160	96
1899	6,294	3,208	1,100	366	164	106

In the report of the Liverpool Medical Officer of Health for 1900 tuberculous meningitis, tabes mesenterica, and scrofula are classified together, and a similar, though less marked, ratio is seen: All ages, 430; under 1, 113; 1 to 2, 70; 2 to 5, 82. From these statistics, then, it would appear that both these diseases occur with greatest frequency during the first year of life, or at any rate are then most fatal, and the most optimistic physician will admit that in meningeal tuberculosis the death-rate is practically equivalent to the rate of incidence.

Such being the facts it would be strange if in a hospital like the Liverpool Infirmary for Children, with a monthly attendance of over a thousand new patients from which to recruit the wards, verified cases should prove extremely uncommon. Nevertheless a careful search through the *post-mortem* records for the last seventeen years shows that this is so. During that period there have been 85 necropsies where tuberculous meningitis was present, and while 10 of the subjects were in the second year, 18 in the third, and so on there was not a single case in the first year. Over 70 infants have come down to the *post-mortem* room, and 9 of these had meningitis, which in every instance was pronounced definitely not tuberculous, and I have been unable during the last four years to find one among the out-patients which was. At Guy's Hospital there were only three in forty years.¹

Of tabes mesenterica I would not speak so positively. There is a *post-mortem* record of one case only, that of a patient of Dr. P. Davidson, a male infant of 10 months, who had in addition an empyema; but very many more infants die with symptoms of intestinal disease where it would be impossible without examination to exclude tubercle than with those of meningitis. Still one necropsy in seventeen years hardly points to a mortality of more than half the total number of deaths.

I cannot help thinking that if these diseases were so fatal to young infants, we should find more instances recorded in the books of our hospitals, and that in very many of the deaths certified under these headings the tuberculous element was absent. The meningitis, for instance, may have been suppurative, syphilitic, the chronic basilar form described by Barlow and others, or the cerebro-spinal type, either epidemic or sporadic; or perhaps infantile convulsions, with their numerous causes, may have been misinterpreted. The error with tabes mesenterica possibly arises from the vagueness of the term, which in itself gives no clue to the fact that tubercle is involved. Hence the inclusion of many cases of "wasting," for which the bacillus is not responsible.

If my contention is right, greater circumspection in the signing of death certificates, and the avoidance of stating therein as a definite cause what is at best only a surmise, should result in an appreciable improvement in the death-rate from tuberculosis—a highly desirable consummation, whether achieved by the efforts of our sanitarians, or only by the elimination of cases which should never have fallen under that heading.

REFERENCE.

¹ Fagge and Pye-Smith, *Principles and Practice of Medicine*, 3rd edition, vol. 1, p. 635 (1901).